

DIEBACK SURVEY OF THE ERAMBERT SEED ORCHARD

by

P. A. Dugar, M. J. Weiss, P. H. Peacher, J. F. Wolf,
N. A. Overgaard, and R. C. Loomis

INTRODUCTION

State and Private Forestry personnel, Resource Protection Unit, Alexandria Field Office, visited the Erambert Seed Orchard on May 21, 1975. During this visit, some terminal and branch dieback, coupled with excessive pitching, was observed on Mississippi slash, *Pinus elliottii* Engelm. Upon subsequent investigations, similar symptoms were noted on Alabama loblolly, *Pinus taeda* L., and Mississippi shortleaf, *Pinus echinata* Mill. These findings prompted the survey of each geographical source in the orchard to determine how much terminal and branch dieback was present.

METHODS

On November 4 -5, an 8 - 10 percent ground cruise survey was conducted on each slash, loblolly, shortleaf, and longleaf geographical source within the Orchard. Rows within each source were systematically selected so as to insure coverage of the entire source. All trees in each row were examined until a predetermined number of trees had been examined. The data recorded for each tree were: terminal dieback, terminal dieback pitching, branch dieback, branch dieback pitching, or pitching exclusive of dieback. Possible border effects were eliminated by not using the beginning and end rows of each source.

RESULTS

The results of the survey are summarized in Table 1. About 2 percent of the trees examined had dieback or pitching symptoms. Much of the dieback observed was the result of a pine needle midge, *Contarinia* sp., infestation the Orchard had been experiencing since 1971 (Overgaard, et al. 1976).

Tab1 . SURVEY RESULTS

<u>Species</u>	<u>No. Trees Examined</u>	<u>Terminal Dieback</u>	<u>Terminal Pitching</u>	<u>Branch Dieback</u>	<u>Branch Pitching</u>	<u>Terminal dieback w/Pitching</u>	<u>Branch dieback w/Pitching</u>
Ala. Loblolly	a/ 500	12	2	8	---	1	---
Ala. Slash	500	---	---	---	---	---	---
Fla. Longleaf	60	---	---	---	---	---	---
Fla. Slash	500	1	4	1	1	---	1
High Gum Yield Slash	120	---	1	---	---	---	---
Miss. Longleaf	500	---	1	---	---	---	---
Miss. Shortleaf	96	3	2	4	2	1	1
Miss. Slash	500	1	5	---	1	1	---
No. Ala. Longleaf	500	---	---	2	---	---	---
No. Miss. Loblolly	60	---	---	---	---	---	---
So. Ala. Longleaf	47	---	---	---	---	---	---
So. Miss. Loblolly	500	2	---	5	1	---	1
TOTAL	3,883	19	15	20	5	3	3

a/ All figures are actual numbers.

The small amount of damage in each geographical source precluded analysis of possible damage differences among sources or within clones of these sources.

DISCUSSION AND RECOMMENDATION

Terminal and branch dieback was very light at the time of this survey. Most of the dieback was apparently a result of previous years' damage caused by the pine needle midge.

In addition to insect associated damage, pitch canker of pine caused by *Fusarium lateritium* f. *pini* was cited as a possible cause for some of the dieback and pitching. *Fusarium* spp. isolated from damage samples were submitted to Pennsylvania State University for positive identification. These cultures were identified as *Fusarium oxysporum* and *Fusarium moniliforme*. Neither of these organisms has been reported as the cause of pitch canker.

Forest Service research personnel are aware of the dieback-pitching problem and they are currently trying to determine the cause.

According to Overgaard, et al., the severe dieback problem at the Erambert Seed Orchard due to pine needle midge infestation has been greatly reduced. This trend was noted as a result of the Orchard's discontinued use of spraying with the insecticide dimethoate. No control practices are recommended for pine needle midge until further investigation into the life cycle and habitat of the needle midge is conducted.

Presently, no control procedures are recommended for the pitching problem since disease incidence is very low and neither the causal organism nor the mode of transmission is known. Seed orchard personnel should be alert for recurrence of both problems and notify us as soon as possible upon its detection.

REFERENCES

- Overgaard, N. A., H. N. Wallace, C. Stein, and G. D. Hertel. 1976. Needle midge (Diptera:Cecidomyiidae) damage to loblolly pines in the Erambert Seed Orchard.